ALTERNATIVES TO RH1020 AND RH1280

Customers who have previously used RH1020 or RH1280 devices for their space-flight applications can choose from a range of alternative Actel radiation-tolerant FPGAs.

For applications requiring minimum footprint, the RTSX32SU-CQ84B and RTSX32SU-CQ84E have the same package dimensions as the RH1020-CQ84V. The RTSX32SU has sufficient logic gates to easily integrate RH1020 and RH1280 designs.

For applications with high total ionizing dose characteristics, the RTAX-S family has been tested to 200Krad with no parametric failures, and to 300Krad with no functional failures. The RTAX250S has sufficient logic gates to integrate RH1020 and RH1280 designs, and additionally has 54kbits of embedded SRAM.

An added advantage of the RTSX-SU and RTAX-S families is that they have much higher resistance to single event upsets (SEUs) than the RH1280. The LET_{TH} of the SEU-enhanced flip-flops used on the RTSX-SU and RTAX-S FPGAs is in excess of 37 MeV.cm^2/mg, meeting the requirements of the vast majority of space-flight applications.

Because of advances in FPGA architecture, the RTSX-SU and RTAX-S do not have design libraries which are compatible with the RH1020 and RH1280. Migration of an RH1020 or RH1280 schematic design will require re-entry of the design using library macros for the target RTSX-SU or RTAX-S device. Designs originally developed in Verilog or VHDL will need to be resynthesized using the appropriate target library. Because of changes in power supply requirements and advances in packaging technology, the pin assignments of the suggested RT devices are incompatible with the RH1020 and RH1280.

Further details on the RTSX-SU and RTAX-S product families are located at
http://www.actel.com/documents/spaceguide_PIB.pdf

Please contact your local Actel Field Applications Engineer if you need assistance in migrating an RH1020 or RH1280 design to an RTSX-SU or RTAX-S device.